

IN THE CLAIMS

CLAIM 1 (Currently Amended) A structure comprising:

a polycrystalline material comprising crystallites of polymers with interstitial regions therebetween;

wherein said polymers ~~are selected from the group consisting of a precursor to an electrically conductive polymer and~~ is an electrically conductive polymer;

said interstitial regions between said crystallites comprising amorphous material comprising an additive;

said additive provides mobility to said polymer to allow said polymer to associate with one another to achieve said crystallites;

said polycrystalline material is characterized by a degree of crystallinity and a degree of amorphous regions, said degree of polycrystallinity and said degree of amorphous regions are selected by selecting the composition of said additive and the amount of said additive; and

wherein said additive is a plasticizer selected from the group consisting of:

Adipic acid derivatives	Sebacic acid derivatives
Azelaic acid derivatives	Stearic acid derivatives
Benzoic acid derivatives	Diethyl succinate
Citric acid derivatives	N-Ethyl o,p-toluenesulfonamide
Dimer acid derivatives	o,p-toluenesulfonamide
Epoxy derivatives	Terpentines
Fumaric acid derivatives	Terpentine derivatives
Glycerol triacetate	Siloxanes

Isobutyrate derivatives	Polysiloxanes
Isophthalic acid derivatives	Ethylene glycols
Lauric acid derivatives	Polyethylene glycols
Linoleic acid derivative	Polyesters
Maleic acid derivative	Sucrose derivatives
Mellitates	Tartaric acid derivative
Myristic acid derivatives	Terephthalic acid derivative
Oleic acid derivatives	Trimellitic acid derivatives
Palmitic acid derivatives	Glycol derivatives
Paraffin derivatives	Glycolates
Phosphoric acid derivatives	Hydrogenated terphenyls HB-40
Phthalic acid derivatives	poly(alkyl naphthalene)s Paraflex
Ricinoleic acid derivatives	aliphatic aromatics Leromoll
	chlorinated paraffin (52 wt % Cl),
	Ceraclor S-52
	Phosphonic acid derivatives
	Polysilanes

CLAIM 2 (Original) A structure according to claim 1, wherein said structure is electrically conductive and has an isotropic electrical conductivity.

CLAIM 3 (Cancel)

CLAIM 4 (Cancel)

CLAIM 5 (Original) A structure according to claim 1, wherein said polymer is selected from the group consisting of substituted and unsubstituted polyparaphenylene vinylenes, polyparaphenylenes, polyanilines, polythiophenes, polyazines, polyfuranes, polypyrroles, polyselenophenes, poly-p-phenylene sulfides, polyacetylenes formed from soluble precursors, combinations thereof and blends thereof with other polymers and copolymers of the monomers thereof.

CLAIM 6 (Original) A structure according to claim 1, wherein said structure has crystallinity greater than about 25%.

CLAIM 7 (Currently Amended) A structure comprising:

a polycrystalline material comprising crystallites of polymers with interstitial regions therebetween;

said polymer is ~~selected from the group consisting of a precursors to an electrically conductive polymer and~~ an electrically conductive polymer;

said interstitial regions comprise an amorphous material selected from the group consisting of said polymers;

said amorphous material includes an additive;

said polycrystalline material is characterized by a degree of crystallinity and a degree of amorphous regions, said degree of polycrystallinity and said degree of amorphous regions are selected by selecting the composition of said additive and the amount of said additive; and

wherein said additive is a plasticizer selected from the group consisting of:

Adipic acid derivatives	Sebacic acid derivatives
Azelaic acid derivatives	Stearic acid derivatives
Benzoic acid derivatives	Diethyl succinate
Citric acid derivatives	N-Ethyl o,p-toluenesulfonamide
Dimer acid derivatives	o,p-toluenesulfonamide
Epoxy derivatives	Terpentines
Fumaric acid derivatives	Terpentine derivatives

Glycerol triacetate	Siloxanes
Isobutyrate derivatives	Polysiloxanes
Isophthalic acid derivatives	Ethylene glycols
Lauric acid derivatives	Polyethylene glycols
Linoleic acid derivative	Polyesters
Maleic acid derivative	Sucrose derivatives
Mellitates	Tartaric acid derivative
Myristic acid derivatives	Terephthalic acid derivative
Oleic acid derivatives	Trimellitic acid derivatives
Palmitic acid derivatives	Glycol derivatives
Paraffin derivatives	Glycolates
Phosphoric acid derivatives	Hydrogenated terphenyls HB-40
Phthalic acid derivatives	poly(alkyl naphthalene)s Paraflex
Ricinoic acid derivatives	aliphatic aromatics Leromoll
	chlorinated paraffin (52 wt % Cl),
	Ceraclor S-52
	Phosphonic acid derivatives
	Polysilanes

CLAIM 8 (Original) A structure according to claim 7, wherein said polymer is an electrically conductive polymer and said polycrystalline material has a conductivity which is isotropic.

CLAIM 9 (Original) A structure according to claim 7, wherein said polymer is selected from the group consisting of substituted and unsubstituted polyparaphenylene vinylenes, polythianophenes, polyparaphenylenes, polyanilines, polythiophenes, polyazines, polyfuranes, polypyrroles, polyselenophenes, poly-p-phenylene sulfides, polyacetylenes formed from soluble precursors, combinations thereof and blends thereof with other polymers and copolymers of the monomers thereof.

CLAIM 10 (Cancel)

CLAIM 11 (Cancel)

CLAIM 12 (Original) A structure according to claim 1, wherein the amount of said additive is adjustable.

CLAIM 13 (Original) A structure according to claim 12, wherein said amount is controlled to modify physical properties of said structure.

CLAIM 14 (Original) A structure according to claim 13, wherein said physical properties are selected from the group consisting of glass transition temperature, compliance, thermal coefficient of expansion, modulus, yield and tensile strength, hardness, density.

CLAIM 15 (Original) A structure according to claim 1, wherein said crystallites have a size greater than about 80Å.

CLAIM 16 (Cancel)

CLAIM 17 (Original) A structure according to claim 7, wherein said crystallites have a size greater than about 80Å.

CLAIM 18 (Currently Amended) A structure comprising:

a polycrystalline material comprising crystallites of polyaniline with interstitial regions therebetween;

said polyaniline is ~~selected from the group consisting of a precursors to an electrically conductive polyaniline and~~ an electrically conductive polyaniline;

said interstitial regions comprise an amorphous material selected from the group consisting of polyaniline;

said amorphous material includes an additive in an amount from about 0.001% to about 90% by weight;

~~said additive is selected from the group consisting of poly-co-dimethylaminopropyl-siloxane, poly (ethylene glycol) tetrahydro furfuryl ether, glycerol triacetate and epoxidized soy-bean oil;~~

said polycrystalline material is characterized by a degree of crystallinity and a degree of amorphous regions, said degree of polycrystallinity and said degree of amorphous regions are selected by selecting the composition of said additive and the amount of said additive ;and

wherein said additive is a plasticizer selected from the group consisting of:

Adipic acid derivatives	Sebacic acid derivatives
Azelaic acid derivatives	Stearic acid derivatives
Benzoic acid derivatives	Diethyl succinate
Citric acid derivatives	N-Ethyl o,p-toluenesulfonamide
Dimer acid derivatives	o,p-toluenesulfonamide
Epoxy derivatives	Terpentines
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Glycerol triacetate	Siloxanes
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Isophthalic acid derivatives	Ethylene glycols
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Linoleic acid derivative	Polyesters
Maleic acid derivative	Sucrose derivatives
Mellitates	Tartaric acid derivative
Myristic acid derivatives	Terephthalic acid derivative
Oleic acid derivatives	Trimellitic acid derivatives
Palmitic acid derivatives	Glycol derivatives

Paraffin derivatives	Glycolates
Phosphoric acid derivatives	Hydrogenated terphenyls HB-40
Phthalic acid derivatives	poly(alkyl naphthalene)s Paraflex
Ricinoleic acid derivatives	aliphatic aromatics Leromoll
	chlorinated paraffin (52 wt % Cl),
	Geraclor-S-52
	Phosphonic acid derivatives
	Polysilanes

CLAIM 19 (Original) A structure according to claim 1, wherein the amorphous material in the interstitial regions contains crosslinks.

CLAIM 20 (Original) A structure according to claim 1, wherein the amorphous material in the interstitial regions are deaggregated.

CLAIM 21 (Previously Presented) A structure according to claim 1, wherein the additive is in an amount for about 0.001% to about 90% by weight.

CLAIM 22 (Original) A structure according to claim 1, wherein said structure is selected from the group consisting of an electrostatic discharge layer, is a wire, is a solder, is an electromagnetic interference shield, is a semiconductor device, and a corrosion protection coating.

CLAIM 23 (Previously Presented) A structure according to claim 1, wherein said amorphous regions have crystalline order.

CLAIM 24 (Previously Presented) A structure according to claim 1, wherein said additive has a different material composition from said polycrystalline material.